

D-Fly - Programming Guide

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Revision History

Changes to the original manual are listed below.

Document	Date	Description
1.1	13 July 07	Initial release
1.2	26 Aug. 08	Add "The different connection method" section
1.3	02 July 09	Modify "Operating Mode" section & Add "buffered data" section.
1.4	22 Sept 09	Modify "reading mode" section and add No Duplicate scan option
1.5	25 Nov 09	Add : paragraphs 1.2.3 'Turn OFF' ; add feature Buzzer ON/OFF (par. 1.6) ; Modify paragraph 1.8 ; add 2.8.7 "Italian Pharmacode settings" ; Add 2.14.8 "ISSN/ISBN settings" ; Add 2.15 "GS1 Databar 14 settings" ; Add 2.16 "GS1 Databar Limited settings"

Introduction

The D-Fly barcode scanner can be programmed by scanning barcode labels which contain commands for the 1D decoder.

Programming labels must be Code128, with specific starting and ending characters. These labels will always be read, even if Code128 symbology is disabled.

The scanner will acknowledge a good and valid programming bar code label reading with two beeps and a green enlightening led. It will give two other beeps (lower tone) and a red enlightening led for either an invalid or bad reading.

Please do not read the programming barcodes while being connected to the BaracodaManager software. Programmable options are divided into 2 groups. The first group includes the options that show the general behaviour of the scanner. The second group sets the decoding parameters for each barcode symbology.

All our documentations can be downloaded from the Partners download section of Baracoda website (registration is required):

<http://www.baracoda.com>

1. General Configuration

1.1. General default settings

The reading of the "Reset to factory settings" label turns all the parameters of the scanner back to default settings and switches it off



1.2. Baracoda advanced features

1.2.1. Switch on delay

In order to switch on the scanner in its standard mode, you should just press the trigger. You can set up the scanner to be switched on only after keeping the trigger pressed for two (2) seconds by reading the appropriate barcode.

Switch on delay : 2 seconds



Switch on delay : 0 second (*)



1.2.2. Shutdown timers

There are two (2) different 'shutdown timers':

- When connected timer: delay between the last scanned barcode and the switch off when the scanner is connected to a host
- Not connected timer: delay between the last scanned barcode and the switch off when the scanner is not connected to any host

It is possible to set those timers to 'infinity'. In this case, the scanner will stay all the time ON.

Set shutdown timers to infinity



By default, timers value are:

- When connected timer = 20 minutes
- Not connected timer = 10 minutes

Set shutdown timers to defaults



1.2.3. Turn scanner OFF

Supported from version v1.46. To turn off the scanner, read the following barcode:

Turn off scanner



1.2.4. No data loss mode and Baracoda Header

Baracoda header:

It is a proprietary data encapsulation. It is necessary to activate it to use the Baracoda keyboard emulation (Kemul) and Terminal.

The Baracoda header is enabled in default settings

No data loss mode:

Baracoda has developed a proprietary communication protocol in order to enhance the security of the Bluetooth transmission.

Every barcode sent to the host must be acknowledged by the host (until then, the scanner will transmit it again and again).

This acknowledgment is disabled in default settings. It is strongly recommended to set this protocol acknowledgment on when using the scanner with the BaracodaManager.

Enable Baracoda header + “No Data loss mode” ON



Enable Baracoda header + “No Data loss mode” OFF (*)



Disable Baracoda header + “No data loss mode” OFF



1.3. Reading Mode

In **Trigger mode**, pressing the trigger will activate the beam.

Trigger (*)



The **Aiming trigger mode** has been developed for users who need to scan barcodes very close one to another and they have to be sure to always read the correct one. Once in this mode, in order to read a barcode user will have to press the trigger twice. Pressing it the first time will switch on the beam but will not switch on the decoder (thus allowing user to aim at the correct barcode) while pressing the trigger the second time will activate the decoder thus allowing the scanner to actually decode the barcode.

Aiming Trigger Mode



The **“No duplicate scan” option** has been developed for users who do not want to scan the same barcode twice.

« no duplicate scans » disabled (*)



« no duplicate scans » enabled + error signal

→ If the same barcode is scanned, an error signal is played (two beeps (lower tone) and a red enlightening of the led)



« no duplicate scans » enabled + no decoding

→ If the same barcode is trying to be scanned, it won't be. The laser beam will still be enlightening.



1.4. Operating Mode

Real Time mode

In real time mode, the barcode is decoded and transmitted to the remote host without any delay. If the scanner is not connected, the data is lost.

Real Time mode with No Data Loss option

If the No Data Loss option is activated and if the scanner is not connected or out of Bluetooth range, the scanner will store the data. It can memorise up to 10 000 barcodes (UPC format) and later automatically upload them to the remote host when a Bluetooth connection is established to the host.

Every barcode sent to the host must be acknowledged by the host. If the host fails to send an acknowledgement, the scanner will continue to transmit the barcode until the host does send an acknowledgement.

This acknowledgment is disabled in the default settings. It is strongly recommended to set the No Data Loss mode to ON. This configuration can be set with the BaracodaManager software or with the Programming Guide.

Additionally, this protocol acknowledgment allows an end user to set an audio acknowledgment indicating that the barcode has been successfully transmitted to the host.

1.4.1. Real Time mode

Erases all captured data stored in memory and forces the scanner in Real time mode. No other setting is changed.

Important reminder: if an ACK beep or buffer is needed, the scanner must be set in the “no data loss mode” first.

Enable Real Time with « No Data Loss » mode



Enable Real Time without « No Data Loss » mode



1.4.2. No Data Loss mode - Enable “ACK” beep

Forces the scanner in Real Time mode (with data acknowledgement); Erases all captured data stored in memory. The scanner should have been previously set in the “No data loss mode” ON (So scan the “Enable Real Time with No Data Loss mode” barcode before).

Enable ACK beep



1.4.3. No Data Loss mode - Disable "ACK" beep

Forces the scanner in Real Time mode (without data acknowledgement); Erases all captured data stored in memory. The scanner should have been previously set in the "No data loss mode" ON (So scan the "Enable Real Time with No Data Loss mode" barcode before).

Disable ACK beep



1.4.4. Real Time - Buffered data option

It's possible to set the scanner in "Real Time with No Data Loss mode" but with no bufferisation (buffer configured to 0) when it's not connected. In this particular situation the trigger will not activate the beam: so impossible to read barcodes in this mode, and Both LEDs blinks orange.

Max Buffered Barcodes = 0



Max Buffered Barcodes = MAX



1.5. The different connection methods

There are two (2) different way to create a connection from a Host and a scanner:

- **Slave mode (by default)**

The Host (PC, BaracodaManager, ...) is creating the connection onto the scanner.

- **Master mode**

The scanner is creating itself a connection to the recorded Host Bluetooth address. This connection attempt is set after a scan of barcode. The configuration of Host address (on which the scanner will set up a connection) can be done:

- o Via BaracodaManager software.
- o Via scan of barcodes.

All usage mode (Real Time, No Data Loss, Batch) are obviously available on those two different ways of connection.

Enable master mode



Disable master mode



Enable master mode and disconnect



Disable master mode and disconnect



The configuration of the Host Bluetooth address (BDA) is made by scanning the 0-9, a-f, A-F labels (Appendix 1) as on a calculator; following the timestamp format shown above.

For example: to set the following BDA: 00:c3:EF:44:a2:B9, the user will scan:

- "Set Remote BDA" label,
- "0" label,
- "0" label,
- "c" label,
- "3" label,
- "E" label,
- "F" label,
- "4" label,
- "4" label,
- "a" label,
- "2" label,
- "B" label,
- "9" label,
- "End of Config" label.



1.6. Buzzer and Led Settings

You can use these options to enable or disable the buzzer and / or the Led.



ACK beep on (*)



ACK beep off



Beep level volume = HIGH (*)



Beep level Volume = LOW



BUZZER ON (*)



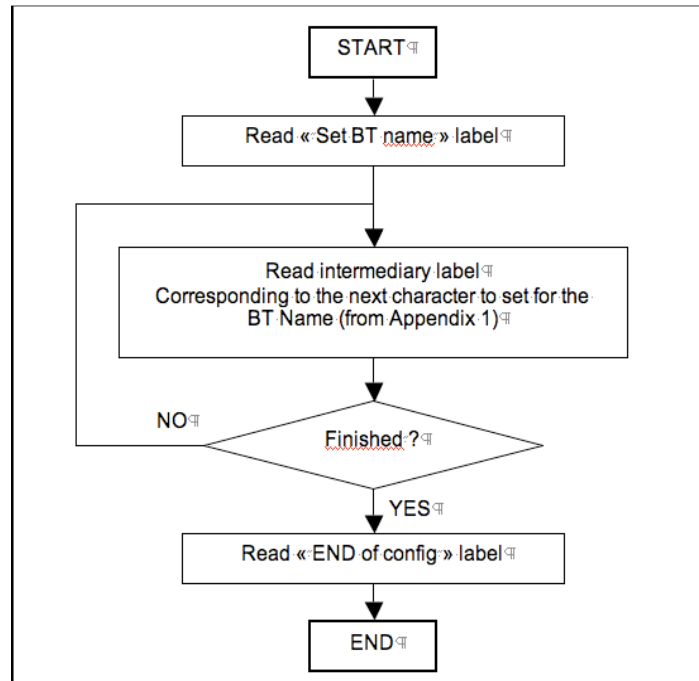
BUZZER OFF



1.7. Bluetooth settings

1.7.1. Bluetooth name

You can change the scanner Bluetooth name; name that you see during a search of Bluetooth peripheral.



Programming procedure for “Set Bluetooth Name”

Set BT Name



End of config



1.7.2. Sniff period settings

Change the Sniff period. If the higher is the latency and the smaller is the power consumption.
Default value is 150ms.

Sniff period = 150ms (*)



Sniff period = 100ms



Sniff period = 200ms



Sniff period = 300ms



Sniff period = 500ms



1.7.3. Security (code PIN) settings

Some Bluetooth device will not accept connections with devices that do not have a security code.

Disable BT security code

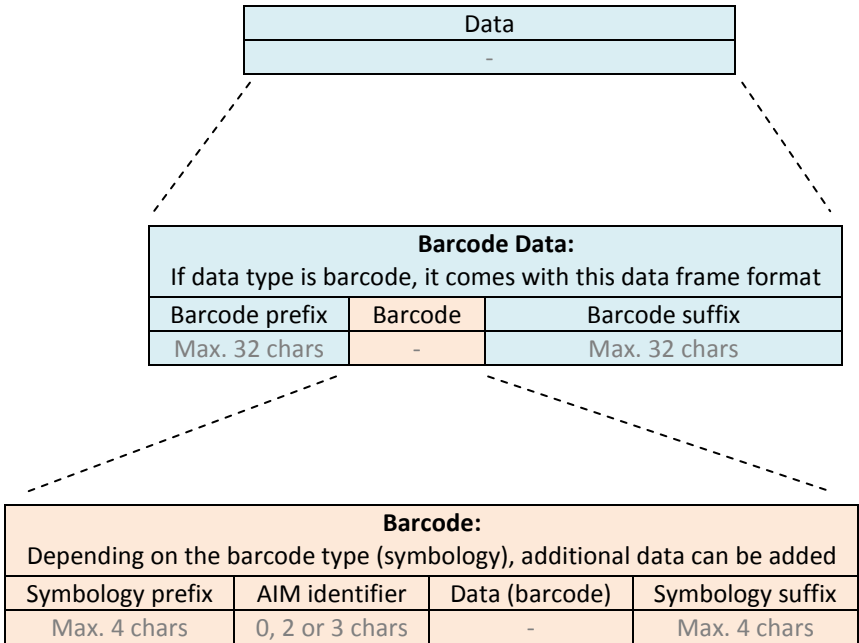


Enable BT security code (*)



1.8. Data format

The barcode string can be added a timestamp, prefixes and/or suffixes. The symbology prefix/suffix can be added by BaracodaManager only. These can come as described below:



1.8.1. Barcode Prefix/Suffix

You can add a barcode prefix and/or suffix (strings of more than 32 characters will not be accepted) to every barcode sent to the host device. There is no barcode prefix or suffix in default settings.

Enable barcode prefix

Disable barcode prefix (*)

Enable barcode suffix

Disable barcode suffix (*)

If enabled, a Barcode prefix/suffix can be set in the same manner as the Data prefix/suffix can be set:

Set Barcode prefix



Set Barcode suffix



End of configuration



1.8.2. AIM Symbology Identifier

AIM Identifier will be transmitted at the beginning of the barcode. More information about the AIM Identifier is available in Appendix2.

AIM Symbology identifier - not transmitted (*)



AIM Symbology identifier - transmitted



2. Decoder Parameters

2.1. Decoder default settings

Sets the defaults decoder settings for all the symbologies

Set Decoder Default Settings



2.2. Enable/Disable All Symbologies

Even if all symbologies are disabled, the scanner will always be able to read the programming barcodes of this document.

Disable all symbologies

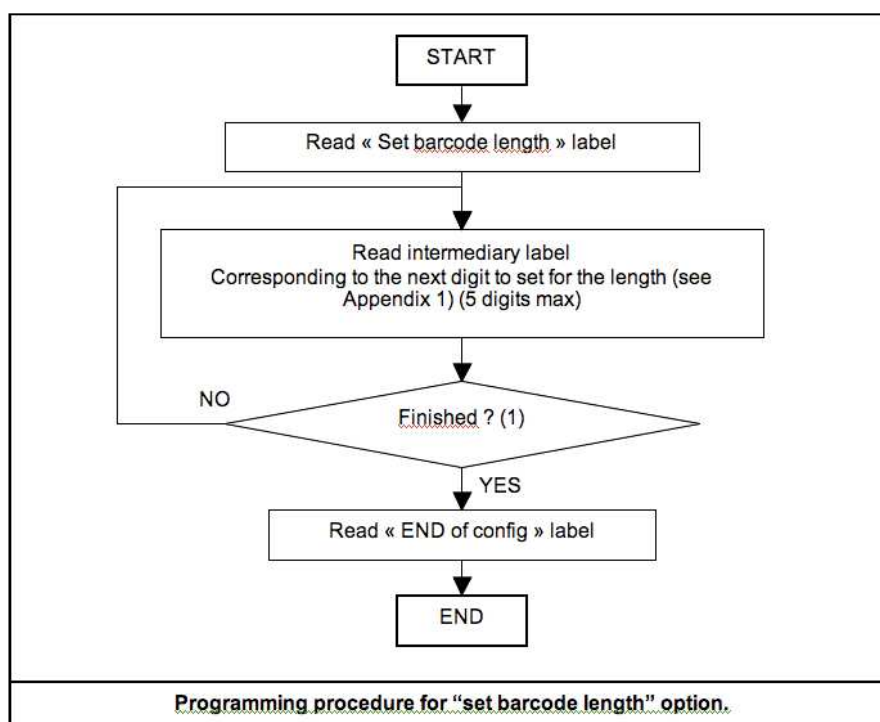


Enable all symbologies (*)



2.3. Set decoder barcode length

You can set a fixed length for the barcode decoding. The scanner will only decode barcodes of this length, regardless the barcode symbology decoded.



Set barcode length



END of config



2.4. Voting

Standard voting set is two (2). This means that a barcode is considered read by the decoder if the same data is decoded twice. Changing this parameter will enable a stronger security on the decoding of the barcode.

Voting = 2 (*)



Voting = 3

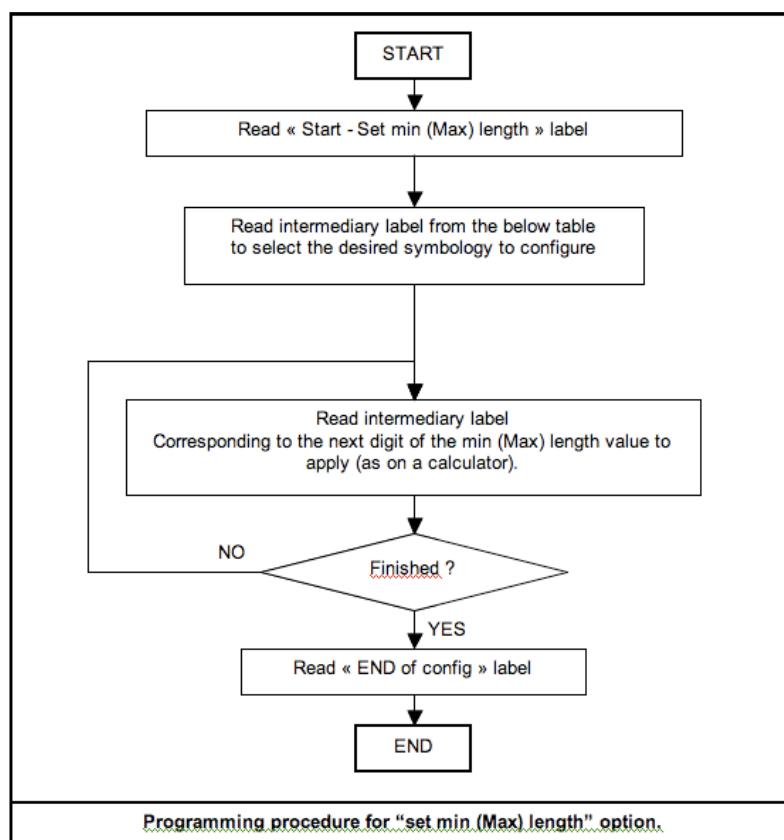


Voting = 4



2.5. Min/Max length per symbology

The following is a procedure to follow for every barcode symbology. The decoder offers the possibility to limit the reading of a barcode to a minimum and a maximum length, if it is for one given symbology type.



Start – set min length



Start – Set Max length



End of config



2.5.1. Symbology table

Header	Selected Symbology
	SELECT ALL
	Code 93
	Code 128 / EAN 128
	Code 39
	Codabar
	Interleaved 2 of 5
	Standard 2 of 5 (industrial 2 of 5)
	Code 11
	MSI

➔ Only the variable length symbologies appear.

2.6. Codabar settings

2.6.1. Enable/Disable Codabar

To enable or disable Codabar, scan the appropriate barcode below.

Disable



Enable (*)



2.6.2. Codabar Start/Stop characters**Not transmitted (*)****Transmitted****2.6.3. Codabar Check Digit Verification (AIM recommendation)****Not used (*)****Checked and transmitted****Checked but not transmitted****2.6.4. Set Lengths for Codabar****Any length****Barcode length Min=6 (*)**

2.7. Code 11 Settings

2.7.1. Enable/Disable Code 11

To enable or disable Code 11, scan the appropriate barcode below.

Code 11 - not active (*)



Code 11 - active



2.7.2. Code 11 check digit(s) verification

1 digit (*)



2 digits



2.7.3. Transmit Code 11 check digit(s)

This feature selects whether or not to transmit the Code 11 check digit(s).

Check and transmitted (Enable) (*)



Check but not transmitted (Disable)



2.7.4. Set Length for Code 11

This features check the length of the barcode.

Code 11 - barcode length - any length



Code 11 – barcode length – Min = 6 (*)



2.8. Code 39 settings

2.8.1. Enable/Disable Code 39

To enable or disable Code 39, scan the appropriate barcode below.

Enable (*)



Disable



2.8.2. Enable/Disable Code 39 Full ASCII

**Code 39 - format - standard 43 characters
(*)**



Code 39 - format - full ASCII



2.8.3. Code 39 Start/stop characters

Code 39 - start/stop - not transmitted (*)



Code 39 - start/stop - transmitted



2.8.4. Accepted Code 39 characters

Code 39 - start/stop - accepted characters - * only (standard Code 39) (*)



Code 39 - start/stop - accepted characters - \$ only (Trioptic Code 39)



Code 39 - start/stop - accepted characters - \$ and * (standard and Trioptic Code 39)



2.8.5. Code 39 Check Digit Verification

Code 39 - check digit - not used (*)



Code 39 - check digit - modulo 43 - checked and transmitted



Code 39 - check digit - modulo 43 - checked but not transmitted



2.8.6. Set lengths for Code 39

Code 39 - barcode length - any length (*)



Code 39 - barcode length - minimum length = 6



2.8.7. Italian PharmaCode settings

Italian PharmaCode is based on Code39 encoding scheme, thus its settings are Code39 settings.

Code 39 – Italian Pharmacode – not active (*)



Code 39 – Italian Pharmacode – active



Code 39 – Italian Pharmacode – Enable ‘A’ character transmission



Code 39 – Italian Pharmacode – Disable ‘A’ character transmission (*)



2.9. Code 93 Settings

2.9.1. Enable/Disable Code 93

To enable or disable Code 93, scan the appropriate barcode below.

Code 93 - not active



Code 93 – active (*)



2.9.2. Set Lengths for Code 93

Code 93 - barcode length - any length



Code 93 - barcode length - minimum length = 6 (*)



2.10. Code 128 Settings

2.10.1. Enable/Disable Code 128/EAN 128

To enable or disable Code 128/EAN 128, scan the appropriate barcode below.

Disable



Enable (*)



2.10.2. Set lengths for Code 128/EAN 128

Code 128/EAN 128 - barcode length - any length (*)



Code 128/EAN 128 - barcode length - minimum length = 6



2.10.3. EAN 128: Group Separator

'FNC1' included in an EAN128 code is transmitted by default as 'GS' (Group Separator – 0x1D).

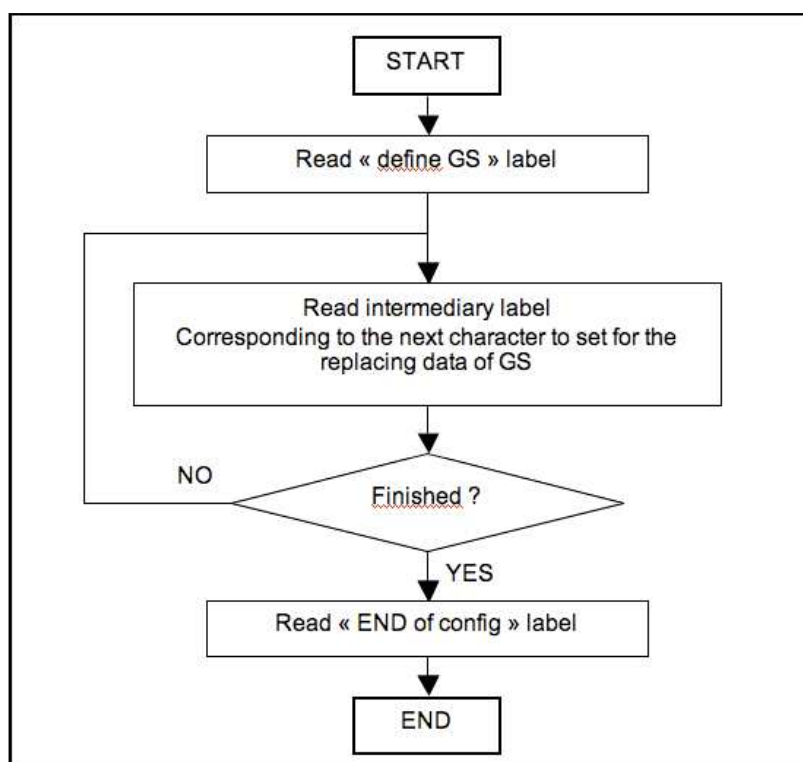
Enable GS transmission (*)



Disable GS Transmission



There is also the possibility to replace this character by any other of the user's choice:



Define GS replacement character



End of configuration



The most common request to replace 'GS' by the | (pipe) can be done through the scan of:

Define | as GS



2.10.4. Enable/Disable AIM ID Transmission

Even if the “AIM ID transmit” is disabled, it is possible to enable the AIM ID transmission for EAN128.

Enable AIM ID transmission for EAN128



Disable AIM ID transmission for EAN128 (*)



2.11. Interleaved 2 of 5 Settings

2.11.1. Enable/Disable Interleaved 2 of 5

To enable or disable Interleaved 2 of 5, scan the appropriate barcode below

Interleaved 2 of 5 - not active



Interleaved 2 of 5 – active (*)



2.11.2. Interleaved 2 of 5 Check Digit

Interleaved 2 of 5 - check digit - not used (*)



Interleaved 2 of 5 - check digit - mod 10 - checked and transmitted



Interleaved 2 of 5 - check digit - mod 10 - checked but not transmitted



2.11.3. Set lengths for Interleaved 2 of 5

Interleaved 2 of 5 - barcode length - minimum length = 6 (*)



Interleaved 2 of 5 – barcode length- any length



2.12. MSI Code Settings

2.12.1. Enable/Disable MSI

To enable or disable MSI code, scan the appropriate barcode below.

MSI Code - not active (*)



MSI Code – active



2.12.2. MSI Check Digit

MSI Code - check digit - mod 10 - checked and transmitted (*)



MSI Code - check digit - mod 10 - checked but not transmitted



MSI Code - check digit - double mod 10 - checked and transmitted



MSI Code - check digit - double mod 10 - checked but not transmitted



2.12.3. Set lengths for MSI

MSI Code - barcode length - any
length



MSI Code - barcode length - minimum length = 6
(*)



2.13. Standard 2 of 5 Settings

2.13.1. Enable/Disable Standard 2 of 5

To enable or disable Standard 2 of 5 code, scan the appropriate barcode below.

Standard 2 of 5 - not active



Standard 2 of 5 – active *



2.13.2. Standard 2 of 5 Check Digit

Standard 2 of 5 - check digit mod 10 - not used (*)



Standard 2 of 5 - check digit mod 10 - checked and transmitted



Standard 2 of 5 - check digit mod 10 - checked but not transmitted



2.13.3. Set lengths for Standard 2 of 5

Standard 2 of 5 - barcode length - any
length



Standard 2 of 5 - barcode length - minimum length = 6
(*)



2.14. UPC/ EAN Settings

2.14.1. Enable/Disable UPC/EAN

UPC / EAN - active (*)



UPC / EAN - not active



UPC / EAN - UPC-A and EAN 13 deactivated



UPC / EAN - UPC-E deactivated



UPC / EAN - EAN-8 deactivated



2.14.2. Transmit EAN13 Check Digit

UPC / EAN - check digit - UPC-A and EAN13 - transmitted (*)



UPC / EAN - check digit - UPC-A/EAN 13 - not transmitted



2.14.3. Transmit UPC-E Check Digit

UPC / EAN - check digit - UPC-E - transmitted (*)



UPC / EAN - check digit - UPC-E - not transmitted



2.14.4. Transmit EAN 8 Check Digit

UPC / EAN - check digit - EAN-8 - transmitted (*)



UPC / EAN - check digit - EAN-8 - not transmitted



2.14.5. Transmit UPC-A Check Digit

UPC / EAN - UPC number system - UPC-A - transmitted (*)



UPC / EAN - UPC number system - UPC-A - not transmitted



2.14.6. Transmit UPC number system for UPC-E

UPC / EAN - UPC number system - UPC-E - transmitted (*)



UPC / EAN - UPC number system - UPC-E - not transmitted



2.14.7. UPC-A, UPC-E, EAN conversions

UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-A transmitted as EAN-13



UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-A transmitted as UPC-A (*)



UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-E transmitted as UPC-E (*)



UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-E transmitted as UPC-A



UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - EAN-8 transmitted as EAN 8 (*)



UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - EAN-8 transmitted as EAN-13



2.14.8. ISSN/ISBN settings

UPC / EAN – ISSN/ISBN – Active (*)



UPC / EAN – ISSN/ISBN – Not active



UPC / EAN – ISSN/ISBN – ISSN hyphen not transmitted (*)



UPC / EAN – ISSN/ISBN – ISSN hyphen transmitted



UPC / EAN – ISSN/ISBN – ISSN price code not transmitted (*)



UPC / EAN – ISSN/ISBN – ISSN price code transmitted



2.14.9. Add-on digits settings

UPC / EAN – Add-on digits – 2-digit add-ons not active (*)



UPC / EAN – Add-on digits – 2-digit add-ons active



UPC / EAN – Add-on digits – 5-digit add-ons not active (*)



UPC / EAN – Add-on digits – 5-digit add-ons active



UPC / EAN – Add-on digits – not required but transmitted if read (*)



UPC / EAN – Add-on digits – required and transmitted



2.15. GS1 DataBar (RSS) 14 Settings

2.15.1. Enable/Disable GS1 DataBar 14

GS1 DataBar 14 - active (*)



GS1 DataBar 14 – not active



2.15.2. GS1 DataBar 14 Check Digit Transmission

GS1 DataBar 14 - check digit - transmitted (*)



GS1 DataBar 14 - check digit - not transmitted



2.15.3. GS1 DataBar 14 Linkage flag Transmission

GS1 DataBar 14 – Linkage Flag - not transmitted (*)



GS1 DataBar 14 - Linkage Flag - transmitted



2.15.4. GS1 DataBar 14 Application ID Transmission

GS1 DataBar 14 – Application ID - transmitted (*)



GS1 DataBar 14 - Application ID - not transmitted



2.16. GS1 DataBar (RSS) Limited Settings

2.16.1. Enable/Disable GS1 DataBar Limited

GS1 DataBar Limited - active (*)



GS1 DataBar Limited – not active



2.16.2. GS1 DataBar Limited Check Digit Transmission

GS1 DataBar Limited - check digit - transmitted (*)



GS1 DataBar Limited - check digit - not transmitted



2.16.3. GS1 DataBar Limited Linkage flag Transmission

GS1 DataBar Limited – Linkage Flag - not transmitted (*)



GS1 DataBar Limited - Linkage Flag - transmitted



2.16.4. GS1 DataBar Limited Application ID Transmission

GS1 DataBar Limited – Application ID - transmitted (*)



GS1 DataBar Limited - Application ID - not transmitted



3. APPENDIX 1: ASCII Table (A-Z, a-z, 0-9, punctuation, Control characters)

Capital letters (A-Z):

Name	Programming label		Name	Programming label
A			N	
B			O	
C			P	
D			Q	
E			R	
F			S	
G			T	
H			U	
I			V	
J			W	
K			X	
L			Y	
M			Z	

Small letters (a-z):

Name	Programming label	Name	Programming label
a		n	
b		o	
c		p	
d		q	
e		r	
f		s	
g		t	
h		u	
i		v	
j		w	
k		x	
l		y	
m		z	

Ponctuation:

Name	Programming label	Name	Programming label
Space		<	
!		=	
"		>	
#		?	
\$	 Y L F Y L F S Y L F Y L F	@	
%		[	
&		]	
'		^	
(		_	
)		{	
*			
+		}	
,		~	
-		:	
.		;	
/			

Decimal numbers (0-9):

Name	Programming label
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	

Control Characters:

Name	Programming label
CR	
EOT	
ETX	
LF	
NUL	
SOH	
STX	
TAB	

4. APPENDIX 2 – AIM symbology identifiers structure

The SI prefix is a two (2) or three (3) character string:

] c m where

] : SI indicator

c : Symbology Identification

m : Modifier characters (optional)

Symbology Character	
A	Code 39
B	Telepen
C	Code 128
D	Code One
E	EAN/UPC
F	Codabar
G	Code 93
H	Code 11
I	ITF 25
K	Code 16K
L	PDF417
M	MSI code
N	Anker Code
O	Codablock
P	Plessey Code
R	Straight 2 of 5 (two bar start/stop codes)
S	Straight 2 of 5 (three bar start/stop codes)
T	Code 49
X	Other Bar code
Z	Non Barcode data

Modifier Characters

The modifier character is determined by summing the option values of each symbology. If the sum is greater than 9, use A, B, C, D, E, F in the place of 10, 11, 12, 13, 14 and 15.

Code 39 Option Values

- 0 No check character or Full ASCII
- 1 Reader has performed mod 43 check
- 2 Reader has performed mod 43 check and stripped the check character
- 4 Reader has performed Full ASCII conversion

Telepen Option Values

- 0 Full ASCII mode
- 1 Double density numeric mode
- 2 Double density numeric followed by full ASCII
- 4 Full ASCII followed by double density numeric

Code 128 Option Values

- 0 Standard
- 1 Function code 1 in first character position
- 2 Function code 2 in second character position
- 4 Concatenation according to ISBT specification has been performed, and concatenated data follows.